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10/003,864	11/02/2001	Anuj Batra	TI-32504	7458
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TEXAS INSTRUMENTS INCORPORATED			WANG, TED M	
P O BOX 655474, M/S 3999			ART UNIT	
DALLAS, TX 75265			PAPER NUMBER	
			2611	

DATE MAILED: 06/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/003,864

Applicant(s)

BATRA ET AL.

Examiner

Ted M. Wang

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 April 2006 amendment.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 and 14-20 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☒ Claim(s) 19-21 is/are allowed.  
6) ☒ Claim(s) 1-5, 11 and 14-18 is/are rejected.  
7) ☒ Claim(s) 6-10 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 06/10/2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments, filed on 21 April 2006, have been fully considered but they are not persuasive. The Examiner has thoroughly reviewed Applicants' arguments but firmly believes that the cited reference to reasonably and properly meet the claimed limitations.

#### Independent Claim 1

(1) *Applicants' argument* – "In rejecting claim 1, the Examiner has stated that Mansfield describes assigning channels to corresponding windows. Applicants respectfully disagree and point to the Examiner that Mansfield does not even change the order of original hopping sequence and uses the sequence as is but changes the way it uses the original hopping sequence. ... In complete contrast, claim 1 recites assigning good channels to a good window and the bad channels to a bad window by using an adaptive frequency hopping scheme. Mansfield does not teach this limitation." as recited.

#### *Examiner's response* –

As discloses in column 7, lines 34-46, column 9, lines 23-50 and column 18, lines 60-61, Mansfield's reference teaches the bad channels are maintained in a separate list. It is inherent that the good channels are maintained in a separate list. The separation of bad and good channels is grouping of bad and good channels, separately. i.e. A group of good channels is called "a good

window” and a group of bad channel is called “a bad window” as defined by the instant application (page 6 lines 3-5).

Furthermore, Mansfield teaches “ An important aspect of the invention is that the BT system is modified to look ahead to see which BT channel frequencies are soon be used, and, when comparing the potential channel frequencies with a separately maintained channel frequency blacklist of channel frequencies having unacceptable interference thereon, the BT system dynamically adapts among the different length BT packet lengths to avoid transmission on blacklisted channel frequencies. The system of the invention is then able to maintain higher performance under conditions of interference by avoiding the channel frequencies on the blacklist, which are known to suffer from high interference or poor transmission quality.” cited in column 7 lines 34-46.

As recited in the specification of the instant application, paragraph 5, lines 1-2, “ One approach for adaptive frequency hopping is to hop over a reduced set of hopping frequencies that are deemed to be free of interference.” , the Mansfield’s reference teaches the exact function as that of adaptive frequency hopping scheme performed by the instant application.

Thus, for the explanation addressed in the above paragraph, the rejection under 35 U.S.C. 102(e) with Mansfield’s reference is adequate.

*Dependent Claim 5*

(2) *Applicants’ argument* – “Regarding claim 5, the Examiner has cited Table 2A of Mansfield as window with slots. Applicants respectfully point to the Examiner that

actually Table 2A illustrates the status of "all frequencies" used by a device in a 23-frequency mode (see col. 11, lines 14-23). Table 2A is a complete layout of all frequencies available to the device and it is not a "window" as recited in claim 5." as recited.

*Examiner's response –*

As discloses in column 7, lines 34-46, column 9, lines 23-50 and column 18, lines 60-61, Mansfield's reference teaches the bad channels are maintained in a separate list. It is inherent that the good channels are maintained in a separate list. The separation of bad and good channels is grouping of bad and good channels, separately. i.e. A group of good channels is called "a good window" and a group of bad channel is called "a bad window" as defined by the instant application (page 6 lines 3-5). Since the bad channels (bad window) are maintained in a separate list with 5 channel slots (channels 3-5, 15 and 19) as shown in table 2A, it is inherent that the bad channel window (channels 3-5, 15 and 19) has at least four slots to which the channels may be assigned and the good channel window (channels 1, 2, 6-14, 16-18 and 20-23) has at least four slots to which the channels may be assigned. Thus, for the explanation addressed in the above paragraph, the rejection under 35 U.S.C. 102(e) with Mansfield's reference is adequate.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 2, 5, 11 and 14-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Mansfield (US 6,704,346).

- With regard claim 1, Mansfield discloses a method of intelligent frequency hopping (column 18, lines 56-61), comprising:
  - sampling a plurality of channels in the frequency band (column 4 lines 41-62 and column 9 lines 23-28);
  - identifying each channel in the plurality of channels as a good channel or a bad channel as a function of a predetermined factor (column 9, lines 23-50); and
  - assigning the good channels to a good window and the bad channels to a bad window by using an adaptive hopping scheme (column 7, lines 34-46, column 11 line 14 – column 12 line 45, column 9 lines 23-50, and column 18 lines 60-61).
- With regard claim 2, Mansfield further discloses wherein sampling the plurality of channels samples all channels available to a network (column 4 line 63-67 and column 9 lines 23-28).
- With regard claim 5, Mansfield further discloses wherein each window has at least four slots to which the channels may be assigned (see Table 2A).
- With regard claim 11, Mansfield further discloses sampling at least one channel in an original hopping sequence (column 4, line 63-column 7, line 25).

- With regard claim 14, Mansfield further discloses detecting the good channel, and assigning the good channel to the good window, when a good window is being generated (column 11, line 14-column 12, line 45).
- With regard claim 15, Mansfield further discloses the act of detecting the bad channel, and assigning the bad channel to a bad window, when a bad window is being generated (column 11, line 14-column 12, line 45).
- With regard claim 16, Mansfield further discloses generating the good window by assigning the good channels to a window (column 11, line 14-column 12, line 45).
- With regard claim 17, Mansfield further discloses generating the bad window by assigning the bad channels to a window (column 11, line 14-column 12, line 45).
- With regard claim 18, Mansfield further discloses wherein all of the channels in the good window are used before any channels in the bad window are used (column 3 lines 1-25).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mansfield (US 6,704,346).

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- With regard claims 3 and 4, Mansfield further discloses a blacklist maintenance algorithm 40 by using the signal strength indicator (RSSI) to compare with a threshold to indicate the significant interference channel as “bad” or distressed, otherwise as “good” (column 9, lines 5-15 and lines 23-50).

Mansfield does not disclose expressly wherein the good/bad channel is defined as a channel having at least a predetermined Quality Level of Service (QLS).

At the time the invention was made, it would have been to a person of ordinary skill in the art to choose QLS to compare with a threshold to indicate the significant interference channel as “bad” or distressed, otherwise as “good” within the blacklist algorithm 40. Applicant has not disclosed that wherein the good channel is defined as a channel having at least a predetermined Quality Level of Service (QLS) provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with the good channel is defined as a channel having at least a predetermined signal strength indicator (RSSI) because any predetermined factor, such as the signal to noise ratio (SNR), Quality Level of Service (QLS), or signal strength indicator (RSSI) used to indicate the receiving signal quality can be properly used to compare a threshold in order to determine a “good” or “bad” channel. Therefore, it would have been obvious to one of ordinary skill in this art to modify Mansfield's blacklist algorithm 40 to obtain the invention as specified in claims 3 and 4.

***Double Patenting***



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6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claim 1 is provisionally rejected on the ground of nonstatutory double patenting over claim 9 of copending Application No. 10/003,865. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter. Although the conflicting claims are not identical, they are not patentably distinct from each other because the broader application claim would have been obvious in view of the narrower issued claim.

- Claim 9 of copending Application No. 10/003,865 recites the limitations "sampling a plurality of channels in the frequency band", "identifying each channel in the plurality of channels as a good channel or a bad channel as a function of a predetermined factor", "assigning the good channels to a good window and the

bad channels to a bad window by using an adaptive hopping scheme", and other limitation as described in claim 1. On the other hand, claim 1 of the instant application recites the limitations "sampling a plurality of channels in the frequency band", "identifying each channel in the plurality of channels as a good channel or a bad channel as a function of a predetermined factor", "assigning the good channels to a good window and the bad channels to a bad window by using an adaptive hopping scheme". Therefore, claim 1 of the instant application merely broadens the scope of claim 9 of copending Application No. 10/003,865 by eliminating the limitation as described in claim 1. It is obvious the limitations of claim 9 of copending Application No. 10/003,865 read on the limitations of claim 1 of the instant application. Further, it has been held that the omission of an element and its function is an obvious expedient if the remaining elements perform the same functions as before. See *In re Karlson*, 136 USPQ 184 (CCPA 1963). Also note *Ex parte Rainu*, 168 USPQ 375 (BdPatApp&Int 1970); omission of a reference element whose function is not needed would be obvious to one skilled in the art.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Allowable Subject Matter***

8. Claims 19-21 are allowed.

9. Claims 6-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is an examiner's statement of reasons for allowance.

- The prior art fails to teach an apparatus of Claim 19 and 20 that specifically comprises the following:
  - The instant application is deemed to be directed to a non-obvious improvement over the admitted prior art of the instant application and the invention patented in Pat. No. US 6,704,346 and US 5,333,153. The improvement comprises "determining a ratio of the good channels to the bad channels (the ratio); assigning a first size to a good window, and a second size to a bad window, such that the ratio of the size of the good window to the size of the bad window is the same as the ratio;" as recited in combination with other limitation in Claims 19 and 20, respectively.

US 6,704,346 reference teaches all limitation except the limitation as recited in the above paragraph and good/bad window size. US 5,333,153 teaches generating good/bad window size and does not teach the limitation as recited in the above paragraph. US 6,704,346 and US 5,333,153, respectively and in combination, do not teach the allowable subject matter as recited in the above paragraph.

***Conclusion***

11. Reference(s) US 5,333,153 is cited because they are put pertinent to the frequency hopping with generating good/bad window size. However, none of references teach detailed connection as recited in claim.

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


14. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted M. Wang whose telephone number is 571-272-3053. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ted M. Wang

  
**KEVIN BURD**  
**PRIMARY EXAMINER**

Ted M Wang  
Examiner  
Art Unit 2611